UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,280	12/29/2000	D. Scott Wilbur	33700.WC005	6495

25871 7590 05/29/2008

SWANSON & BRATSCHUN, L.L.C.
8210 SOUTHPARK TERRACE
LITTLETON, CO 80120

EXAMINER	
KANTAMNENI, SHOBHA	
ART UNIT	PAPER NUMBER
1617	

MAIL DATE	DELIVERY MODE
05/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/750,280	WILBUR ET AL.	
	Examiner	Art Unit	
	Shobha Kantamneni	1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *34,73,74,99-107 and 109-113* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *NONE* is/are allowed.

6)☒ Claim(s) *34,73-74,99-107,109-113* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/17/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/17/2007 has been entered.

The amendment filed on 12/19/2007 amended claim 99, and cancelled claim 108.

Applicant's amendment by inserting "aspartyl group" in claim 99 overcomes the rejection of claims 34, 73-74, 99, 100-107, 109-111 under 35 U.S.C. 102(b) as being anticipated by Wilber et al. (WO 97/29114, PTO-1449 of record).

Claims 34, 73-74, 99-107, and 109-113 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 73-74 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. 112, first paragraph, have been described in *In re Wands*, 8 USPQ2d 1400 (Fed. Cir. 1988). Among these factors are: (1) the nature of the invention; (2) the state of the prior art; (3) the relative skill of those in the art; (4) the predictability or unpredictability of the art; (5) the breadth of the claims; (6) the amount of direction or guidance presented; (7) the presence or absence of working examples; and (8) the quantity of experimentation necessary. When the above factors are weighed, it is the examiner's position that one skilled in the art could not practice the invention without undue experimentation.

(1) The nature of the invention:

The invention provides a single molecule reagent of structure (I) with at least three functional parts comprising a trifunctional cross-linking moiety that is linked via a linker to an affinity ligand, a biomolecule reactive moiety, and an effector agent for the treatment of cancer or for diagnosis of a disease selected from myocardial infarcts, myocardial perfusion and cancer in a mammal.

(2) The breadth of the claims:

The claims are very broad. The claims are drawn to a reagent of structure (I) for the diagnosis and treatment of any cancer in a mammal. The breadth of the claims includes hundreds of types of cancers and tumors. Thus, there is no such thing as the

treatment or diagnosis of these unknown list of cancers as claimed using one reagent of structure (I).

(3) The amount of direction or guidance presented:

Pages 2-3 of the specification provide support for the diagnosis of myocardial infarcts and for the diagnosis and treatment of certain cancers recited on pages 2-3. However, this is the only guidance the specification presents regarding the diseases and conditions that can be diagnosed or treated using a trifunctional reagent. The remainder of the specification is directed toward the specifics of the compounds of structure (I) and a method of making them.

(4) The state of the prior art:

The prior art, WO 97/29114 teaches that trifunctional compounds can be used for the diagnosis of certain cancers and myocardial infarcts, and the treatment of certain cancers. However, the art, does not teach the possible compounds encompassed by structure (I) of instant claim 99. See WO 97/29114.

While the state of the art is relatively high with regard to treating specific cancers in general, the state of the art with regard to treating any cancer disorder is underdeveloped. In particular, there is no known anticancer agent which is effective against all cancers. Carter, et al. (Chemotherapy of Cancer, 2nd ed., 1981) clearly teaches that for the forty known anticancer agents, none are effective against all cancers (pages 362-365). There are compounds that treat a range of cancers, but no one has ever been able to figure out how to get a compound to be effective against cancer generally, or even a majority of cancers. Thus, the existence of such a "silver

bullet" is contrary to our present understanding in oncology. This is true in part because cancers arise from a wide variety of sources, such as viruses (e.g. EBV, HHV-8, and HTLV-I), exposure to chemicals such as tobacco tars, genetic disorders, ionizing radiation, and a wide variety of failures of the body's cell growth regulatory mechanisms. Different types of cancers affect different organs and have different methods of growth and harm to the body, and different vulnerabilities. Even those that affect a single organ are often not generally treatable. For example, the main types of lung cancer are small cell (oat cell), giant cell, clear cell, adenocarcinoma of the lung, squamous cell cancer of the lung, and mesothelioma. There is no such thing as a treatment of these generally because of their diversity. Thus, it is beyond the skill of oncologists today to get an agent that is effective against to be used for the diagnosis/treatment of any cancer generally, and evidence that the level of skill in this art is low relative to the difficulty of such a task.

(5) The relative skill of those in the art: (6) The predictability or unpredictability of the art:

The relative skill of those in the art is high with respect to specific single molecule reagent.

It is well established that "the scope of enablement various inversely with the degree of unpredictability of the factors involved," and physiological activity is generally considered to be an unpredictable factor. See In re Fisher, 427 F.2d 833, 839 (1970). Cancers are especially unpredictable due to their complex nature. Please refer to the discussion of Carter, et al. and the state of the art in (4) that shows the different

treatments of cancers. The treatment of one type of cancer could not be necessarily the same for the other type. Thus, the instant claimed invention as discussed above is highly unpredictable.

The applicant has not provided any competent evidence that the instant compounds are effective for treating/diagnosing any or all types of cancers disclosed and embraced by the claim language for the intended host. Lack of a working example is a critical and crucial factor to be considered, especially in a case involving an unpredictable and undeveloped art. See MPEP 2164. As discussed above, treatment/ diagnosis of any cancers as in claims 73-74 by employing a compound of formula (I) is highly unpredictable.

(7) The presence or absence of working examples:

Pages 21-23 provide examples, but these examples are all directed toward methods of making the compounds of structure (I). There are no working examples for the diagnosis or treatment of cancer using compounds of structure (I).

(8) The quantity of experimentation necessary:

In order to practice the claimed invention, one of skill in the art would have to first envision a compound, a dosage for each compound, an appropriate pharmaceutical carrier, the duration of treatment, route of treatment, etc. and, in the case of human treatment, an appropriate animal model system for one of the claimed compounds. One would then need to test the compound in the model system to determine whether or not the compound is effective in treating a specific type of cancer cells. If unsuccessful, which is likely given the lack of significant guidance from the specification or prior art

regarding treatment of cancer with any compound encompassed by structure (I) of instant claim 99, one of skill in the art would have to then either envision a modification of the first pharmaceutical compound, compound dosage, duration of treatment, route of administration, etc. and appropriate animal model system, and test the system again. In order to practice Applicant's invention, it would be necessary for one to conduct the preceding experimentation for each type of cancer because, as described by Carter, et al., there is no known drug effective for treating all types of cancer. Therefore, it would require undue, unpredictable experimentation to practice the claimed invention to treat any cancer disorder as in claims 73-74, by employing compounds represented by formulas (I).

Further, chemical modification of biomolecules may alter the biological property that is important in the use of that particular molecule e.g. targeting cancer cells and also other properties such as solubilities in aqueous media, binding affinities etc. Thus, variety of compounds encompassed by structure (I) will have different biological properties. Considering vast variety of compounds covered by structure (I) and the multitude of different diseases to be diagnosized and treated, this is a very large degree of experimentation.

Moreover, the standard for determining whether the specification meets the enablement requirement was cast in the Supreme Court of Mineral Separation v. Hyde, 242 U.S. 262, 270 (1916) which postured the question: is the experimentation needed to practice the invention undue or unreasonable? That standard is still the one to be applied.

Genetech, 108 F.3d at 1366 states that "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable."

Therefore, a method for treating/diagnosing any cancer as in claims 73-74, by employing the various compounds represented by formula (I) is not considered to be enabled by the instant specification.

Claim Objections

Claims 112-113 are objected to because of the following informalities: Claim 112 depends on cancelled claim 108. Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 34, 73-74, 99-107, and 109-113 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable

over claims 1-25 of copending Application No. 11/516419. Although the conflicting claims are not identical, they are not patentably distinct from each other because the reagent of '419 encompasses the instant single molecule reagent.

Thus, the reagent, in the application '419, and in the instant application are seen to be substantially overlapping. Therefore, the instant claims 34, 73-74, 99-107, and 109-113 are seen to be obvious over the claims 1-25 of application 11/516419.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shobha Kantamneni whose telephone number is 571-272-2930. The examiner can normally be reached on Monday-Friday, 7.30am-3.30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan, Ph.D can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shobha Kantamneni, Ph.D
Patent Examiner
Art Unit 1617

/SREENI PADMANABHAN/

Supervisory Patent Examiner, Art Unit 1617

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	09/750,280	WILBUR ET AL.	
	Examiner	Art Unit	
	Shobha Kantamneni	1617	